

sometimes the union is more extensive. In a few genera, as *Anatina* and *Pholadomya*, the two lamellæ of the same side are so united as to appear like a single gill. In the *Pholadomya* it forms a thick oblong mass, finely plicated transversely, attenuated at both extremities, slightly bifid at the posterior one. A line traverses longitudinally the middle of the external surface, which has no other trace of division. The branchiæ on each side adhere to the mantle by the whole of their dorsal margin, and are united together where they extend beyond the visceral mass, being separated, by the interposition of that mass, along their anterior two-thirds. A narrow groove extends along the free anterior margins of each gill. When the inner side of this apparently simple gill is examined, it is seen to be divided into three longitudinal channels, by two ridges, containing the vascular trunks and nerves of the gills. A style passed from the excretory siphon, behind the conjoined extremities of the branchiæ, enters the dorsal channel, from which the excretory respiratory currents are discharged: the middle channel is characterized by an orifice which conducts into the cavity of the gill, where the ova are hatched: the third channel forms the inner or mesial surface of the gill, which is not otherwise divided." —Ed. *Ann. Nat. Hist.*]

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 BIBLIOGRAPHICAL NOTICES.

*The Genera of Birds.* By G. R. Gray, F.L.S., illustrated by D. W. Mitchell, B.A., F.L.S. Imperial 4to. Parts 1—14.

It is now nearly twenty years since any naturalist has attempted to give a complete synopsis of the *species* of birds. The accessions to our knowledge during the interval have been very great, and the progress which has been made in elucidating the characters and improving the classification of the species previously known, is no less remarkable. The facts thus elicited were however scattered through rare and costly publications, many of which, especially the voluminous Transactions of foreign Societies, are almost inaccessible to the working naturalist, who will therefore hail with gratitude the work before us, which supplies him with a ready index to the whole subject of ornithology. Mr. Gray's position in the British Museum has given him peculiar facilities for perfecting his laborious undertaking, which requires a constant and ready access to books and specimens. The classification which he has adopted is for the most part consistent with natural affinities, though some of the groups, *Pachycephalinæ* for instance, consist of rather incongruous materials. Really natural groups are generally confined within certain geographical limits, and when we see an assemblage either of species or of genera from remote parts of the world brought together to form a superior group, there is often reason to suspect that their supposed affinities are apparent rather than real.

The definition of families and genera is one of the most difficult duties of the naturalist, and he is often unable so to generalize the characters of groups as to satisfy the logician. We frequently see a species connected by the closest affinity to others, yet differing from them in the very points in which the latter mutually agree, so that

it is impossible to draw up a definition which shall embrace the whole, without qualifying it with such terms as "generally," "more or less," "except," &c. Mr. Gray has overcome these difficulties by care and judgement, and has given us very full generalizations of generic characters, though these would have been more useful if the *diagnostic* portion of them were printed in a different type, or otherwise separated from the general mass. Another important feature in the work is the condensation of superfluous genera, which are daily manufactured by scores on trivial or imaginary characters, and which Mr. Gray has used a sound discretion in reducing within reasonable limits.

In regard to species, the author has only been able to give a full list of them under each genus, accompanied by their chief synonyms and references to the principal works where they are figured or described. To have annexed their specific characters would have extended the work fourfold and consumed years of valuable time. The localities might however have been mentioned with advantage, and the specific characters of the new species which are occasionally introduced ought to have been added. In other respects the student is guided at once to the best sources of information, while the rigid impartiality with which the rule of priority is enforced supplies him with a nomenclature which seems likely to be permanent.

In the illustrative plates the essential characters of every genus are admirably displayed, and in each subfamily a coloured plate of some new or unfigured species is introduced. This portion of the work is beautifully executed by Mr. Mitchell, who has entered fully into the spirit of that improved style of delineation first introduced into ornithology by Mr. and Mrs. Gould's unrivalled pencils. Mr. Mitchell has been the first to apply the art of *lithotint* to the illustration of zoological subjects, and in representing that wonderfully organized structure, the plumage of birds, we are inclined to prefer it to any other method, as attaining the happy medium between the hardness of line-engraving and the indistinctness of common lithography. Indeed in respect both of drawing and colouring, it would be scarcely possible to produce more perfect copies of nature than some of these plates exhibit. The only defect which we have noticed is the occasionally too abrupt transition of the leg into the body in some of the figures, that of *Esacus* and *Syrnhaptes* for instance.

It will be evident to the practical zoologist that this beautiful and elaborate work will tend greatly to advance our knowledge of ornithology, and that no public or private museum can be scientifically arranged without its aid.

*Descriptiones Animalium quæ in itinere ad Maris Australis terras per annos 1772-74 suscepto collegit J. R. Forster, nunc demum editæ curante H. Lichtenstein. Svo. Berlin, 1844. Pp. 424.*

Professor Lichtenstein has conferred a boon on literature and science by rescuing from oblivion these original observations of a profound and learned naturalist. John Reinhold Forster is well-known as the companion of Cook in his second voyage round the world, but by various mischances these memoranda of the valuable additions which he made to natural history have remained in MS. for *seventy*